

# **NPDES PERMIT NO. NM0020133**

## **FACT SHEET**

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

### **APPLICANT**

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### **ISSUING OFFICE**

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### **PREPARED BY**

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### **DATE PREPARED**

August 1, 2016

### **PERMIT ACTION**

Renewal of a permit previously issued on July 8, 2011, with an effective date of August 1, 2011, and an expiration date of July 31, 2016.

### **RECEIVING WATER – BASIN**

Canada del Buey –Rio Grande Basin

**DOCUMENT ABBREVIATIONS**

In the document that follows, various abbreviations are used. They are as follows:

4Q3	Lowest four-day average flow rate expected to occur once every three-years
BAT	Best available technology economically achievable
BCT	Best conventional pollutant control technology
BPT	Best practicable control technology currently available
BMP	Best management plan
BOD	Biochemical oxygen demand (five-day unless noted otherwise)
BPJ	Best professional judgment
CBOD	Carbonaceous biochemical oxygen demand (five-day unless noted otherwise)
CD	Critical dilution
CFR	Code of Federal Regulations
cfs	Cubic feet per second
COD	Chemical oxygen demand
COE	United States Corp of Engineers
CWA	Clean Water Act
DMR	Discharge monitoring report
DO	Dissolved oxygen
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FWS	United States Fish and Wildlife Service
mg/l	Milligrams per liter
ug/l	Micrograms per liter
lbs	Pounds
MG	Million gallons
MGD	Million gallons per day
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMIP	New Mexico NPDES Permit Implementation Procedures
NMWQS	New Mexico State Standards for Interstate and Intrastate Surface Waters
NPDES	National Pollutant Discharge Elimination System
ML	Minimum quantification level
O&G	Oil and grease
POTW	Publically owned treatment works
RP	Reasonable potential
SS	Settleable solids
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
SWQB	Surface Water Quality Bureau
TDS	Total dissolved solids
TMDL	Total maximum daily load
TRC	Total residual chlorine
TSS	Total suspended solids
UAA	Use attainability analysis
USGS	United States Geological Service
WLA	Waste Load allocation
WET	Whole effluent toxicity
WQCC	New Mexico Water Quality Control Commission
WQMP	Water Quality Management Plan
WWTF	Wastewater treatment plant

## I. CHANGES FROM THE PREVIOUS PERMIT

Changes from the permit previously issued on July 8, 2011, with an effective date of August 1, 2011, and an expiration date of July 31, 2016, are as follow:

- Removal percentage for BOD<sub>5</sub> and TSS has been established.
- Limits for E. coli have been relaxed; monitoring frequency has been increased.
- Monitoring frequency of pH has been reduced.
- Limit for DO has been established.
- WET testing criteria (species, frequency) have been changed.

## II. APPLICANT LOCATION and ACTIVITY

As described in the application, the facility (Outfall 001: Latitude 35° 49' 39.93" North and Longitude 106° 11' 5.96" West) is located at 600 Overlook Road, White Rock, Los Alamos County, New Mexico.

Under the SIC code 4952, the applicant operates Los Alamos County White Rock Wastewater Treatment Facility (WWTF), which has a design flow of 0.82 MGD providing sanitary services for residents in the city. The WWTF provides primary and secondary levels of treatment. The wastewater is treated with a trickling filters system. Effluent is disinfected with chlorine, followed by dechlorination and then discharged to the Canada Del Buey, an unclassified water (20.6.4.98 NMAC), thence to the Rio Grande of the Rio Grande Basin via Outfall 001. The reuse water (under a ground water permit) is drawn off before dechlorination. Generated sewage sludge is hauled to the Los Alamos WWTF for further treatment and disposal. A map of the facility is attached.

## III. EFFLUENT CHARACTERISTICS

Data submitted in Form 2A for the WWTF is as follows:

Parameter	Max	Avg
	(mg/l unless noted)	
pH, minimum, standard units (su)	6.62	NA
pH, maximum, standard units (su)	7.64	NA
Flow (MGD)	0.28	0.25
Temperature (C), winter	18.9	12.3
Temperature (C), summer	26.4	23.4
Biochemical Oxygen Demand, 5-day (BOD <sub>5</sub> )	22.82	18.7
E. coli (cfu/100 ml)	2	1
Total Suspended Solids (TSS)	18.13	14.94
Ammonia (as N)	18	11.07
TRC	0	0
DO	4.46	4.04
Total Kjeldahl Nitrogen (TKN)	24	17
Nitrate + Nitrite Nitrogen	7.8	5.8
Oil & Grease	0	0
Phosphorus (Total)	7.9	6.37
TDS	424	404

Since July 2013, there have been several exceedances according to the submitted DMRs as follow:

Date	Parameter	Exceedance (pH: 6.6 – 9.0)	Exceedance (daily max: 410 cfu/100 ml))
7/31/13	pH	6.48	

12/31/13	E. coli		412.5
5/31/14	E. coli		562.4
12/31/14	E. coli		649
13/31/15	E. coli		429.3

#### IV. REGULATORY AUTHORITY/PERMIT ACTION

In November 1972, Congress passed the Federal Water Pollution Control Act establishing the NPDES permit program to control water pollution. These amendments established technology-based or end-of-pipe control mechanisms and an interim goal to achieve “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water”; more commonly known as the “swimmable, fishable” goal. Further amendments in 1977 of the CWA gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry and established the basic structure for regulating pollutants discharges into the waters of the United States. In addition, it made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. Regulations governing the EPA administered the NPDES permit program are generally found at 40 CFR §122 (program requirements & permit conditions), §124 (procedures for decision making), §125 (technology-based standards) and §136 (analytical procedures). Other parts of 40 CFR provide guidance for specific activities and may be used in this document as required.

The application was dated February 2, 2016. It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a).

#### V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

##### A. OVERVIEW of TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations contained in 40 CFR §122.44 NPDES permit limits are developed that meet the more stringent of either technology-based effluent limitation guidelines, numerical and/or narrative water quality standard-based effluent limits, or the previous permit.

Technology-based effluent limitations are established in the proposed draft permit for TSS and BOD, and percent removal for each. Water quality-based effluent limitations are established in the proposed draft permit for *E. coli* bacteria, pH, TRC and DO.

##### B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

###### 1. General Comments

Regulations promulgated at 40 CFR §122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on ELGs where applicable, on BPJ in the absence of guidelines, or on a combination of the two. In the absence of promulgated guidelines for the discharge, permit conditions may be established using BPJ procedures. EPA establishes limitations based on the following technology-based controls: BPT, BCT, and BAT. These levels of treatment are:

BPT - The first level of technology-based standards generally based on the average of the best existing performance facilities within an industrial category or subcategory.

BCT - Technology-based standard for the discharge from existing industrial point sources of conventional pollutants, including BOD, TSS, *E. coli* bacteria, pH, and O&G.

BAT - The most appropriate means available on a national basis for controlling the direct discharge of toxic and non-conventional pollutants to navigable waters. BAT effluent limits represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

## 2. Effluent Limitation Guidelines

The facility is a POTW/POTW-like that has technology-based limits established at 40 CFR Part 133, Secondary Treatment Regulation. Pollutants with requirements established in this Chapter are BOD, TSS and pH. BOD limits of 30 mg/l for the 30-day average and 45 mg/l for the 7-day average and 85% percent (minimum) removal are found at 40 CFR §133.102(a). TSS limits; also 30 mg/l for the 30-day average and 45 mg/l for the 7-day average, average and 85% percent (minimum) removal are found at 40 CFR §133.102(b). However, existing limits for BOD and TSS are more stringent and retained in the permit draft. Limits for pH are between 6-9 s.u. and are found at 40 CFR §133.102(c). The draft permit establishes new limits for percent removal for both BOD and TSS. Since these are technology-based requirements there is no compliance schedule provided to meet these limits. Compliance is required on the permit effective date.

Regulations at 40 CFR §122.45(f)(1) require all pollutants limited in permits to have limits expressed in terms of mass such as pounds per day. When determining mass limits for POTWs or similar, the plant's design flow is used to establish the mass load. Mass limits are determined by the following mathematical relationship:

Loading in lbs/day = pollutant concentration in mg/l \* 8.345 (lbs)(l)/(mg)(MG) \* design flow in MGD

30-day average BOD/TSS loading = 30 mg/l \* 8.345 (lbs)(l)/(mg)(MG) \* 0.82 MGD = 205 lbs/day

7-day average BOD/TSS loading = 45 mg/l \* 8.345 (lbs)(l)/(mg)(MG) \* 0.82 MGD = 308 lbs/day

A summary of the technology-based limits for the facility is:

Effluent Characteristic Outfall 001 & 601	Discharge Limitation			
	lbs/day, unless noted		mg/l, unless noted	
Parameter	30-day Avg	7-day Max	30-day Avg	7-day Max
BOD	205	308	30	45
BOD, % removal <sup>1</sup>	≥ 85	---	---	---
TSS	205	308	30	45
TSS, % removal <sup>1</sup>	≥ 85	---	---	---
pH	N/A	N/A	6.0 to 9.0 s.u.	

<sup>1</sup> % removal is calculated using the following equation: [(average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration] \* 100.

## 3. Pretreatment Regulation

The facility is not subject to the full pretreatment program pursuant to 40 CFR 403.8. Previous general practices are retained in the permit draft.

## C. WATER QUALITY BASED LIMITATIONS

### 1. General Comments

Water quality based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality limits. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on Federal or State/Tribe WQS. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State/Tribal WQS and applicable State/Tribe water quality management plans to assure that surface WQS of the receiving waters are protected and maintained or attained.

### 2. Implementation

The NPDES permits contain technology-based effluent limitations reflecting the best controls available. Where these technology-based permit limits do not protect water quality or the designated uses, additional water quality-based effluent limitations and/or conditions are included in the NPDES permits. State/Tribe narrative and numerical water quality standards are used in conjunction with EPA criterion and other available toxicity information to determine the adequacy of technology-based permit limits and the need for additional water quality-based controls.

### 3. State Water Quality Standards

The general and specific stream standards are provided in NMWQS (20.6.4 NMAC approved on June 5, 2013). The wastewater flows from the outfall to an unclassified arroyo named Canada del Buey in Los Alamos County in State waters, then flows approximately 300 feet where it enters waters of the San Ildefonso Pueblo. After approximately one-mile, the discharge leaves San Ildefonso Pueblo waters and reaches the Rio Grande in State waters. The San Ildefonso Pueblo does not have EPA approved water quality standards, and does not have NPDES authority. Establishment of permit limits that meet State WQS will be protective of Tribal waters. Previously segment 20.6.4.114 NMAC of the Rio Grande River Basin was first designated stream. According to NMED email dated July 11, 2016, Canada del Buey (20.6.4.98 NMAC) is currently defaulted as the first designated stream until a hydrology protocol or water quality data is available otherwise. The current stream designated uses are livestock watering, wildlife habitat, marginal warmwater aquatic life and primary contact. Because the 4Q3 is zero (no dilution), applicable criteria must be met at end of the pipe.

### 4. Permit Action - Water Quality-Based Limits

Regulations promulgated at 40 CFR §122.44(d) require limits in addition to, or more stringent than effluent limitation guidelines (technology based). State WQS that are more stringent than effluent limitation guidelines are as follows:

#### a. pH

For marginal warmwater aquatic life, criterion for pH is between 6.6 and 9.0 s.u. pursuant to 20.6.4.900.H(6) NMAC.

b. Bacteria

For primary contact, criterion for E. coli bacteria is at 206 cfu/100 ml monthly geometric mean and 940 cfu/100 ml daily maximum pursuant to 20.6.4.98 NMAC. Previously 126 cfu/100 ml monthly geometric mean and 410 cfu/100 ml daily max were established. This limit relaxation does not violate the Antibacksliding because the current information of the first designated stream was not available previously pursuant to 40 CFR 122.44(1)(2)(i).

c. Toxics

The CWA in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet water quality standards. Federal regulations found at 40 CFR §122.44 (d) state that if a discharge poses the reasonable potential to cause an in-stream excursion above a water quality criterion, the permit must contain an effluent limit for that pollutant.

All applicable facilities are required to fill out appropriate sections of the Form 2A and 2S, to apply for an NPDES permit or reissuance of an NPDES permit. The new form is applicable not only to POTWs, but also to facilities that are similar to POTWs, but which do not meet the regulatory definition of “publicly owned treatment works” (like private domestics, or similar facilities on Federal property). The forms were designed and promulgated to “make it easier for permit applicants to provide the necessary information with their applications and minimize the need for additional follow-up requests from permitting authorities,” per the summary statement in the preamble to the Rule. These forms became effective December 1, 1999, after publication of the final rule on August 4, 1999, Volume 64, Number 149, pages 42433 through 42527 of the FRL. The facility is designated as a minor, and does not need to fill out the expanded pollutant testing section Part D of Form 2A. There are no toxics that need to be placed in the draft permit.

d. TRC

For wildlife habitat, criteria for TRC is 11 ug/l pursuant to 20.6.4.900.G NMAC.

e. DO

For marginal warmwater aquatic life, criterion for DO is 5 mg/L pursuant to 20.6.4.900.H(6) NMAC. Effluent data shows average DO (4.46 mg/L) is less than 5 mg/L; thus, EPA establishes this limit for the discharge. Since this is a newly established limit, EPA provides a compliance schedule stated in the draft permit.

D. MONITORING FREQUENCY FOR LIMITED PARAMETERS

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity, 40 CFR §122.48(b), and to assure compliance with permit limitations, 40 CFR §122.44(i)(1). Sample frequency is based on Table 8 (page 34 of the NMIP) for design flow between 0.5 and 1.0 MGD and based on compliance history.

Parameter	Frequency	Sample Type
Flow	Daily	Totalized
pH	5/week	Instantaneous Grab
BOD <sub>5</sub> /TSS	3/month	3-hr Composite
% Removal	1/month	Calculation
TRC	5/week	Instantaneous Grab
E. coli Bacteria	1/week (increased due to exceedances)	Grab
DO	3/month	Instantaneous Grab

## E. WHOLE EFFLUENT TOXICITY

Procedures for implementing WET terms and conditions in NPDES permits are contained in the NMIP. Table 11 (page 42) of the NMIP outlines the type of WET testing for different types of discharges. The receiving water, an intermittent stream has a 4Q3 of zero cfs (0 MGD). With the facility design flow rate of 0.82 MGD and mixing fraction of 100%, a CD is calculated about 100%. WET testing species for this minor PTOW are: Ceriodaphnia dubia (Cd) and Pimephales promelas (Pp). Two required WET tests passed at 100% dilution in the previous permit. EPA proposes monitoring for WET in the table below.

The proposed permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests based on a 0.75 dilution series. These additional effluent concentrations must be 32%, 42%, 56%, 75% and 100%. The low-flow effluent concentration (critical low-flow dilution) is defined as 100% effluent. The permittee shall limit and monitor discharge(s) as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
WET Testing (7-day Static Renewal) <sup>1</sup>	30-day Avg Min.	7-day Min.	Frequency <sup>2</sup>	Type
Ceriodaphnia dubia	Report	Report	Once/5 yrs. <sup>3</sup>	24-hr Composite
Pimephales promelas	Report	Report	Once/5 yrs. <sup>3</sup>	24-hr Composite

<sup>1</sup> Monitoring and reporting requirements begin on the effective date of this permit. See Part II of the permit, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions.

<sup>2</sup> This permit does not establish requirements to automatically increase the WET testing frequency after a test failure, or to begin a toxicity reduction evaluation (TRE) in the event of multiple failures. However, upon failure of any WET test, the permittee must report the results to EPA and NMED, Surface Water Quality Bureau, in writing, within 5 business days of notification of the test failure. EPA and NMED will review the test results and determine the appropriate action necessary, if any.

<sup>3</sup> The chronic test shall be finished in first year of permit term between November 1 and April 30. If the chronic test passes, acute test (48 hours static renewal) will be performed using Daphnia pulex with the same dilution series at once/year for the remaining permit term.

## VI. TMDL REQUIREMENTS

The receiving water segment 20.6.4.98 NMAC Canada del Buey is not listed in 303(d) List. No additional limitation/monitoring is required. The permit has a standard reopener clause that would allow the permit to be changed if at a later date additional requirements on new or revised TMDLs are completed.

## VII. ANTIDegradation

The NMAC, Section 20.6.4.8 “Antidegradation Policy and Implementation Plan” sets forth the requirements to protect designated uses through implementation of the State water quality standards. The limitations and monitoring requirements set forth in the proposed permit are developed from the State water quality standards and are protective of those designated uses. Furthermore, the policy sets



forth the intent to protect the existing quality of those waters, whose quality exceeds their designated use. The permit requirements and the limits are protective of the assimilative capacity of the receiving water, which is protective of the designated uses of that water, NMAC Section 20.6.4.8.A.2.

## VIII. ENDANGERED SPECIES CONSIDERATIONS

According to the list updated on July 11, 2016 for Los Alamos County, NM obtained from <http://ecos.fws.gov>, there are endangered (E)/threatened (T) species that were listed in the previous permit: Mexican spotted owl (T) and Southwestern willow flycatcher (E). These species were determined with “no effect”. Since then, there have been 3 additional threatened/endangered species: Jemez Mountains salamander (E), Yellow-billed Cuckoo (T) and New Mexico meadow jumping mouse (E).

There has been no recovery plan for all these additional species, except the jumping mouse. According to the Recovery Outline for the mouse in June 2014, the species is endangered because of habitat loss; the main sources of the loss include grazing eliminating herbaceous vegetation, lack of water, severe wildland fire, souring flooding, highway reconstruction, unregulated recreation, loss of beaver ponds and mowing of riparian vegetation. According to the Federal Register on 11/20/2013 (78 FR 69569 69591), habitat characteristics for the salamander include moderate to high tree canopy cover with high relative humidity, elevations from 6,988 to 11,254 ft, ground surface in forest areas with large fallen trees and underground habitat in forest or meadow areas containing interstitial spaces. Major factors affecting the species are (a) wildland fire, (b) disease (fungus, infection) or predation (by snake, bear, owl), (c) inadequacy of existing regulations and (d) others including chemical use for weed control and climate change per the Federal Register on 09/10/2013 (78 FR 55599 55627). Because of these facts, EPA believes the salamander’s habitats unlikely exist in flow path of the discharge. According to the Federal Register on 8/15/2014 (79 FR 48547 48652) the primary constituent elements specific to the western yellow-billed cuckoo are: riparian woodlands with mixed willow-cottonwood vegetation, mesquite-thorn-forest vegetation, presence of a prey base consisting of large insect fauna, and river systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health, and vigor. The moist conditions that support riparian plant communities that provide western yellow-billed cuckoo habitat typically exist in lower elevation, broad floodplains, as well as where rivers and streams enter impoundments. Major factors affecting the cuckoo are (a) manmade features that alter watercourse hydrology, livestock overgrazing and encroachment from agriculture, climate change, (b) disease (West Nile virus) or predation (by hawk), (c) inadequacy of existing regulations and (d) others including pesticide chemical per the Federal Register on 10/03/2014 (79 FR 59991 60038).

In accordance with requirements under section 7(a)(2) of the Endangered Species Act, EPA has reviewed this permit for its effect on listed threatened and endangered species and designated critical habitat. After review, EPA has no information determining that the reissuance of this permit will have “effect” on the listed threatened and endangered species nor will adversely modify designated critical habitat. EPA makes this determination based on the following:

1. EPA has received no additional information since the previous permit issuance which would lead to revision of its determinations.
2. The draft permit is consistent with the States WQS and does not increase pollutant loadings.

3. There is currently no information determining that the reissuance of this permit will have “effect” on the additional listed threatened and endangered species.

## **IX. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS**

The reissuance of the permit should have no impact on historical and/or archeological sites since no construction activities are planned in the reissuance.

## **X. PERMIT REOPENER**

The permit may be reopened and modified during the life of the permit if NMWQS are promulgated or revised. In addition, if the State develops a TMDL, this permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that TMDL. Modification of the permit is subject to the provisions of 40 CFR §124.5.

## **XI. VARIANCE REQUESTS**

None

## **XII. CERTIFICATION**

The permit is in the process of certification by the State Agency following regulations promulgated at 40 CFR 124.53. A draft permit and draft public notice will be sent to the District Engineer of COE, to the Regional Director of FWS and to the National Marine Fisheries Service prior to the publication of that notice.

## **XIII. FINAL DETERMINATION**

The public notice describes the procedures for the formulation of final determinations.

## **XIV. ADMINISTRATIVE RECORD**

The following information was used to develop the proposed permit:

### **A. APPLICATION(s)**

EPA Application Form 2A dated February 2, 2016 and Form 2S dated July 15, 2016.

### **B. 40 CFR CITATIONS**

Sections 122, 124, 125, 133, 136

### **C. STATE OF NEW MEXICO REFERENCES**

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC June 5, 2013

State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2014-2016

D. MISCELLANEOUS

NMED email dated July 11, 2016

Permittee email dated July 15, 2016

Recovery Outline: New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus*), June 2014.